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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/026,052

12/21/2001

James Allam Forster

TI-32569

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07/13/2004

TEXAS INSTRUMENTS INCORPORATED

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EXAMINER

MITCHELL, JAMES M

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,052

Applicant(s)

FORSTER ET AL.

Examiner

James M. Mitchell

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 10-14, 17 and 26-32 is/are pending in the application.
- 4a) Of the above claim(s) 13, 17 and 26-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-12 and 29-32 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election

1. Applicant's election of the Species of Figure 8 file February 17, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 13, 17 and 26-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made without traverse.

Claim Rejections - 35 USC § 102/103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 1-3, 5, 6, 10-12 and 29-32 are rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over King et al. (US 6,208,027) in combination with Bessho (U.S 6,387,794).

6. King (Fig 1, 2) discloses a temporary interconnect apparatus (Title) having an array of solder ball contacts or connection probes, conductive members stud bump (24, 26) of a selected size, said solder-ball contact (24) having a contact area and a peripheral area comprising: an inherent insulating support substrate (14; via "traces" formed on surface electrical contact)) having a working surface and a back surface, a multiplicity of conductive pads (30) mounted on said working surface, a multiplicity of conductive pathways (Col.3, Lines 13-15) formed on the working surface leading from said pads, an interconnect nest (Fig 2) positioned on said support substrate to receive a solder ball contact point (28) and making electrical connection with a peripheral area of said of said solder ball (28); with and formed on said pads positioned on said support substrate to make electrical connection with a peripheral area of said contact with said solder ball *contacts* (understood to be solder ball, 28); and wherein the stud bumps and projections (24, 26) are gold or aluminum (Col. 2, Lines 27-30).

7. Although King does not appear to explicitly disclose the process limitations of "wire bonder stud bump," the prior art structure is the same as the claimed invention since the stud bump has the same shape of a bump produced by a wire bonder (i.e. elongated portion, 26 protruding from base 24). "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of

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production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

8. The product of King is identical to claimed product, but even if there exist a structural difference resulting from the use of the above noted method, use of that method would have been obvious as explained below.

9. King discloses the elements stated in paragraph 6 of this office action.

10. While King does not explicitly disclose a wire bonder stud bump (understood to mean a stud bump formed by a process of using a wire method) to form the stud bump of King.

11. Bessho (Fig 1A) discloses using a wire bond method (Abstract).

12. It would have been obvious to one of ordinary skill in the art to incorporate a wire bond method with the apparatus of King in order to provide the shape of the bump required by King.

13. Furthermore, because a device is generally not structurally limited by its process, even if the shape of King’s bumps are different than that disclosed by applicant, it is reasonable to interpret any shape of a bump that could be formed by a wire bond method as a wire bonder stud bump, since patentability is defined by the product in a device claim.

Claim Rejections - 35 USC § 103

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14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over King (U.S. 6,208,027).

17. King does not appear to explicitly disclose four conductive members to form the interconnection nest.

18. However, it would have been obvious to one of ordinary skill in the art to form said at least four members, since forming pads with various numbers of contacts are well known in order to increase contact area. Furthermore King's disclosure encompasses the use of four conductive members by not limiting its invention to only three conductive members (i.e. "at least three"; claim 1 of King), and courts have held that mere duplication of parts have no patentable significance unless a new and

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unexpected result is produced. See In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

Allowable Subject Matter

19. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose or make obvious forming a wire bonder stud bump bonded on top of another wire bonder stud bump of the same composition including all the limitations of the independent claim.

Response to Arguments

21. Applicant's arguments with respect to claims have been considered, and new rejection has been applied. In an effort to expedite prosecution of application, examiner has nevertheless addressed arguments by applicant that may still be relevant.

Applicant's threshold argument is centered in its claim that the previously cited art does not disclose wire bonder stud bumps. Examiner respectfully disagrees for the reasons cited in the office actions, most notably paragraph 13 of this office action.

Conclusion

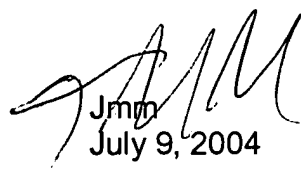
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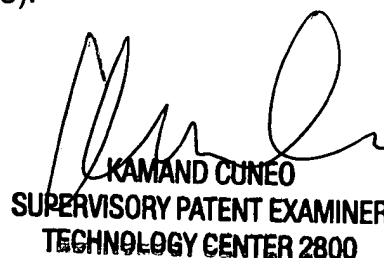
22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hosomi et al (U.S. 20010027007) and Stansbury (U.S. 6, 001,724). The prior art in Hosomi and Stansbury discloses several examples of different shape wire bonder stud bumps.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 10:30-8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jmm
July 9, 2004


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